ROUND 15, AND THE WINNER IS? THE ONGOING DEBATE ON WHO SHOULD MANAGE MEDICAL SUPPLY

A MONOGRAPH
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ABSTRACT

ROUND 15, AND THE WINNER IS? THE ONGOING DEBATE ON WHO SHOULD MANAGE MEDICAL SUPPLY

MAJ Mark A. D'Amato, USA, 50 pages

This study attempts to disprove the paradigm that medical supply requires separate management under the control of the Army's medical community. Disproving this paradigm can result in immediate economies for the Army. In an era of shrinking resources these potential economies become more and more important as the Army strives to maintain readiness for future employment.

Understanding how the Army's medical supply system evolved is central to understanding the medical supply paradigm and eventually disproving it. Therefore, the study begins by reviewing its history since World War II and highlights both current and future medical supply doctrine. With the system's foundation firmly established, arguments for and against it are thoroughly discussed, followed by a short description of its key components. These chapters provide the reader an understanding of the current system and set the stage for testing the assumptions underlying it. With this in mind, the last chapter, using historical as well as current literature, analyses the arguments and disproves the paradigm.

The study ends by concluding that there are no substantial reasons; historical, organizational, or technical, for the separation of medical supply from the general supply system. The potential for integration into the general supply system was recognized as early as World War II and the time is ripe for change. A shrinking budget, coupled with improvements in information management systems and high quality soldiers, is the recipe for change. It is no longer necessary nor cost effective to have a separate medical supply system.

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CHAPTER I

BACKGROUND AND SIGNIFICANCE

Purpose

Medical supply management has traditionally been under the direct control of the Army's medical department since its inception. One can also say that the system has worked reasonably well during its history. The reader may ask then, 'why tamper with something that isn't broke?' This is a fair question and one the author must address before going farther with this study.

A typical response to the above question could focus on efficiency and economy. One might argue that a separate system may be effective yet not the most efficient way to do business (or vice versa). Or, in an era of down sizing, one may look for economies by combining similar operations in an effort to save dollars and reduce personnel requirements. It might even be argued that as conditions change, learning organizations must adapt and re-engineer themselves to meet the challenges imposed by those new conditions. Some may even argue that we are indeed in the middle of a "revolution of military affairs (RMA)" and bold innovative thinking and action are required.

However, the author's reason for embarking on this study is not nearly so grandiose or even as practical as the reasons stated above. If this study happened to touch on any of those areas, it was more by accident or because the 'data' pointed in that direction rather than by design. And if this study generates further interest and debate, that is 'value added' but not expected. The author's reason is simply curiosity. Consequently, the purpose of this research was to satisfy that curiosity.

Background

The Vietnam War played a significant role in the shaping of current combat health support (CHS) and medical supply doctrine and operations. Prior to this war, doctrine had medical support and supply as part of a Field Army Support Command (FASCOM) and as such, was integrated as a logistics function. In the FASCOM, medical groups were placed under the operational control of the logistics' commander. A change in operation and subsequently doctrine began in early 1966 with the establishment of the provisional 44th Medical Brigade. Although at first attached to the 1st Logistical Command, medical commanders of the brigade successfully argued for the placement of the brigade directly under United States Army Vietnam (USARV). This became a reality in August 1967 with the establishment of a medical command structure separate from other logistics commands. This separation became absolute with the establishment of the United States Army Medical Command, Vietnam in 1970.

Another significant event occurred during this time frame which set the stage for a separate medical supply system more by default than by design. In 1962, as part of a Department of the Army Headquarters reorganization, supply management for all supplies (including medical supplies) was consolidated for overseas commands. The purpose of this consolidation was to reduce cost and redundancy in the supply system. As a result, the inventory control point in Hawaii would controlled all requests for supplies within the Pacific Theater. When the United States began to rapidly build its forces in Vietnam, the supply system could not keep pace. Long lead times, acute shortages, accountability problems, and lack of responsiveness during the early phase of this conflict re-opened the debate which eventually led to the transfer of management responsibility back to the medical community. Medical authorities successfully argued that treating medical supplies as just another supply was the primary cause of the problems.

Organization of combat service support (CSS) units contributed to this separation as well. By organizing functionally (i.e. maintenance, supply, transportation, and medical battalions), CSS units naturally separated themselves from each other. Each division, corps, and army had a medical battalion, medical groups, and eventually medical brigades to support them. Given this functional separation, medical supply management within the medical command and control system made perfect sense, much like repair parts management remains under the command and control of maintenance units even today. The creation of the United States Army Medical Material Agency (USAMMA) and the United States Army Medical Research and Materiel Command (USAMRMC) contributed to this separation by function as well. This organization by function supported the technical and specialization requirements of each. However, coordination and synchronization of the logistics effort as a whole remained difficult and continues to be so even today.[1]

In an effort to reform itself, the Army underwent a massive reorganization following the Vietnam War and the demoralizing 1970s. Logistics units were dramatically affected. With their reorganization into multi-functional support battalions as part of the Division 86 and the Army of Excellence (AOE) initiative, the rationale for a separate medical supply system became a hot topic again and new debate resulted between the logistics and medical communities. The debate continues today. What adds emphasis to this dialogue is a change in the conditions surrounding combat service support in the Army as a whole. Improvements in information technology coupled with initiatives like Total Asset Visibility (TAV), Velocity Management (VM) and Battlefield Distribution (BD) call into question the assumptions underlying the current system. The continued shrinkage of resources within the Army is another factor driving this debate. Army leaders at all levels are looking for ways to save money and ways to lighten the logistics' tail. An appreciation for the interconnectedness of all the logistics functions has helped fuel the debate as well.

Medical Supply

Class VIII medical material includes expendable material, such as field dressings and sanitation supplies, pharmaceuticals, medical peculiar repair parts, non-expendable medical items, and blood. The table below depicts the classes and subclasses for medical materiel:

Class VIIIa

Class VIIIb -- blood

Subclass:	1	controlled substances
	2	tax free alcohol
	3	precious metals
	4	non-expendable medical items, not restricted
	5	expendable medical items, not restricted
	6-9	commander-designated controlled items
	0	USAMMA controlled sensitive items

Current Organization And Doctrine

The Division Medical Supply Office (DMSO) in the MSB maintains medical sustainment stocks for the division and resupplies the medical companies in the FSB who in turn resupply the Battalion Aid Stations (BAS) forward.. The DMSO is also the lowest level of automated control and accounting of medical supplies in the Army. The division receives its medical supplies from the corps medical logistics battalion who in turn receives their supplies from theater medical supply units. The concept for medical resupply is unit distribution. The primary means of moving supplies in the division is by ambulance. In the corps and theater the primary means is by direct support transportation assets.

Future Doctrine

Future doctrine for medical logistics (which includes medical supply) looks remarkably similar to the current way ammunition management and supply is currently done. For ammunition, a corps ammunition battalion will typically put one of its companies in direct support of a division. For medical, it is a medical logistics battalion which will do essentially the same thing. Under the new concept, organic divisional medical logistics functions are

eliminated and a multi-functional medical logistics company from the corps medical logistic battalion will be in direct support of the medical units in the division.[2] This effectively eliminates a divisional stockage of medical supplies.

Other significant changes include the elimination of the Divisional Medical Operations Center (DMOC) in the DISCOM with the majority of its functions moved to an expanded Division Surgeon's Section (DSS) in the headquarters company of the division. A Medical Materiel Management Branch (MMMB) to monitor medical supplies and coordinate their movement within the division is created and becomes part of the DMMC.

This trend of future doctrine is the next logical step in the separation of medical operations (including medical supply) from other logistics functions. Under this new concept, the Division Surgeon becomes an operator and synchronizer as well as a planner, supplanting the DISCOM from these responsibilities. "The DSS consists of a medical operations and planning cell, a combat health logistic (CHL) cell, a patient disposition and reports cell, and a preventive medicine cell."[3] In effect, with this new organization, the Division Surgeon becomes the medical operations and logistics synchronizer for the Division, separate from the other logistics functions.

Research Question

Should Class VIII medical supply continued to be managed separate from the Army's general supply system?

Methodology

Sources of Data

This monograph used current and historical documents for the purpose of answering the research question. Primary sources included U. S. Army publications, technical manuals,

professional bulletins, published research, and personal interviews. Secondary sources consisted of unpublished reports and papers, DOD and Army studies, and drafts of regulations and manuals.

Research Method

The objective of this research was to answer three broad questions in regard to medical supply.

1. How did the current system evolve?
2. Is the rationale for a separate system sufficient?
3. Should medical supply be managed outside the normal supply channels?

A review of historical documents was conducted to answer the first question. The second question was answered by analyzing the various reasons for a separate system as espoused by its advocates. The basis for analysis was historical documents, doctrine, and various staff studies.

Research Objectives

1. Determine the necessity of using a different inventory control system to manage medical supplies.
2. Determine the unique training requirements for soldiers operating and managing medical supplies.
3. Study recent history of medical operations and supply to provide the basis for understanding the assumptions underlying the current medical logistics system.
4. Study current and future doctrine to help answer the research questions.
5. Study and determine the adequacy of arguments for and against the current medical supply system.

Significance of the Study

This monograph attempts to disprove the paradigm that medical supply is unique and special and requires separate management under the control of the medical community. Disproving this paradigm can result in immediate economies. In an era of shrinking resources these potential economies become more and more important to the Army as it strives to maintain readiness for future employment.

Centralized management and control of similar functions is one means of accomplishing immediate economies. In terms of both personnel and equipment, real savings are possible. Inventory in a Forward Support Battalion (FSB) is a way to illustrate this potential for economy. There are seven different inventories using six different inventory control systems (ICS) operated/managed by four different MOSs in an FSB!

Inventory	ICS	MOS	Location
PLL (IX)	ULLS	92A	Battalion Motor Pool
Shop Stock (IX)	SAMS	92A	Maintenance Company Shop Office
ASL (IX)	SARSS-O	92A	Maintenance Company Class IX Plt.
Fuel (III)	Manual	77F	Supply Company POL Platoon
General (I,II,IV,VII)	Manual/SARSS-O	92A	Supply Company Supply Platoon
ATP (V)[4]	Manual	55B	Supply Company ATP Section
Medical Supply (VIII)	Manual/TAMMIS-D	76J	Medical Company

The units within the FSB generally co-locate in the Brigade Support Area (BSA). Naturally, then, the question arises as to the need for so many separate inventories, utilizing separate ICPs, managed by different MOSs. Every inventory, ICS and MOS used has its own overhead supporting it. Can we continue to pay for all this overhead? Integration of these similar functions could eliminate some of the supporting overhead resulting in reduced cost and a more favorable 'tooth to tail' ratio. Medical supply management is an area where this economy exists. Medical supply arguably is the most separate of the various FSB inventories. A case for integration of medical supply is a case for the integration of the others as well.[5] Another economy that shouldn't be overlooked is the potential for reduced communication

requirements at all levels for CSS units. This is particularly significant since CSS units traditionally are low on the priority list for communications support.

CHAPTER II

HISTORICAL BACKGROUND

Introduction

To fully understand the assumptions underlying the Army's current system and doctrine for medical supply, an understanding of its history is required. To do this, it is not necessary to look any further back than World War II to gain a thorough appreciation of how the current system evolved. This section then will begin with World War II and address the major conflicts up to Operation Desert Shield/Desert Storm. Significant activities impacting medical supply organization and doctrine which occurred between these periods will also be addressed.

World War II

At the start of World War II in 1939, the medical supply function (procurement, storage, and inventory control) fell under the purview of the Surgeon General's Office. From 1939 to 1942 the Finance and Supply Division within the Surgeon General's Office planned, directed, and managed the build up of medical supplies in anticipation of the United States entry into the war. Like all other supplies, the war reserve stockage for medical supplies was woefully lacking due primarily to a lack of appropriated monies between the two world wars.

One of the most significant events to occur during the war, was the 1942 reorganization of the Army initiated by General Marshall. The impact on logistics was considerable with the formation of a new logistics command structure called the Army Service Forces (ASF). This new command, headed by General Brehon B. Somervell (a Corps of Engineer officer), became the Army's logistics operator much like a DISCOM is for a division. This command structure essentially relieved the Chief of Staff and the General Staff from the day to day administration and operation of the Army's logistics operations in the Zone of

Interior.[6] As such, the Medical Department along with its medical supply responsibilities reported directly to the commander of the ASF, General Somervell. It is interesting to note that the ASF controlled a much broader range of activities than our multi-functional command structure currently does today. For instance, not only did the ASF control the activities of the Quartermaster Corps, Ordnance Department, Corps of Engineers, Medical Department, Signal Department, and the Chemical Warfare Service, but it also controlled "the offices of the Judge Advocate General, The Adjutant General, the Provost Marshall General, the Chief of Special Services, the Chief of Chaplains, and the Chief of Finance...Corps area commanders, general depots, regulating and reconsignment stations for overseas shipments, and ports of embarkation were all placed under the Army Service Force."[7] This organization was highly successful and lasted until 14 May 1946.

Medical supply operations within the different theaters during World War II worked remarkable similar to operations for other types of supplies. The depot system was the cornerstone for supply operations through out this war. Medical supply depots were established at critical ports and locations to support medical units supporting army, corps, and divisional units throughout the various theaters. Depots could be mixed, stocking various types of supply, or they could be strictly medical supply depots.

In terms of medical supply three other significant observations are important. First, demand for medical supplies followed the 80/20 rule.[8] The 32d Medical depot discovered that up to 95% of demand was for items making up around 10% of its stocked lines.[9] This statistical relationship helped supply planners and operators forecast requirements for medical supplies throughout the war. It also helped simplify procurement planning and execution. Second, shortages of doctors throughout the war dictated the shifting of some traditional "doctor" duties toward non-medical personnel. This migration in large measure was forced by the ASF against the wishes of the Surgeon General. "The ASF insisted that the Medical

Department economize in the use of doctors and other members of the medical profession, and it was largely in response to the urging of the ASF headquarters that members of the Medical Administrative Corps, composed of non-medical officers, were increasingly used for administrative duties instead of doctors, dentists, and veterinarians."[10] This greatly expanded the duties and responsibilities of the Medical Administrative Corps which would later become our Medical Service Corps (MSC). Third, the Medical Department extensively used civilian professionals to augment its personnel and to assist in the planning, coordinating, and execution of medical support which included the procurement and storage of medical supplies.[11]

Korean War

US involvement in Korea began in September 1945 with the US occupation of the country south of the 38th parallel. With the dissolution of the ASF and subsequently theater logistics commands (Army Service Command 24 in the Far East) medical support and supply fell under the control of the XXIV Corps surgeon. The 9th Medical Depot Company supported the peninsula with medical supply.

When the North Koreans crossed the 38th parallel on 25 June 1950, they caught both the ROK and United States forces by surprise. Both groups were totally unprepared for the attack. By using a World War II scenario, planners assumed that in the event of war, the build up would be slow and large scale deployments would begin two years after mobilization day.[12] These false assumptions set the stage for near disaster during the early stages of the war. The impact on logistics planning was significant. Excess World War II stocks stored in Japan supported the war effort for the first year and afforded valuable time needed by the military and industry to produce and distribute the required supplies which included medical supplies.

The Korean War started as a mobile war with the U.S. and ROK withdrawal and defense of the Pusan perimeter followed by MacArthur's brilliant amphibious landing at Inchon and subsequent offensive operations to the Yalu River in North Korea. Upon entering the war, Chinese forces pushed the U.N., American, and ROK forces back and a virtual stalemate resulted in the vicinity of the 38th parallel. The command and control situation for medical units changed at this time. The 2d Logistical Command was established and non-divisional medical assets fell under the command and control of this logistical command. This command structure remained throughout the rest of the conflict.

Two additional observations are significant for medical operations and supply during this war. First, the North Koreans and Chinese had no reservations about shooting medics and medical personnel. "The enemy was indifferent to the Western etiquette of war. Attacks on medical personnel, vehicles and tents became the rule rather than the exception."[13] The Geneva Convention which provides protected status for medical personnel and supplies was meaningless in the Korean theater. This necessitated locating medical units within the protective perimeter of the units they supported and had the positive effect of facilitating better support to those units. Second, this war saw the first use of the Mobile Army Surgical Hospital (MASH) which would eventually replace the more logistically ponderous fixed hospital. Third, and more significant in terms of supply, joint and combined logistics support was the norm. Coupled with the treatment of Korean nationals and enemy POWs, a significant burden was placed on the medical supply system.

Vietnam War

Much of the historical background for the Vietnam War was covered in Chapter I. However, there are several additional events that impacted future thinking on medical operations and supply that are worth highlighting in this section. First, the relatively non-mobile nature of the war, allowed the establishment of fixed hospitals providing a much

broader range of services than initially planned for and put an additional unanticipated strain on the medical supply system.[14] Second, the MEDCAP program, which provided medical care to the local Vietnamese people, put another unforecasted requirement on the medical supply system. Third, the use of automation to manage and account for supplies was first used during this war. Fourth, the use of helicopters allowed the evacuation of casualties from the point of injury to the medical unit with the capability to best treat the casualty, many times bypassing the battalion aid station and division clearing station. This had the effect of further separating medical operations and consolidating control under the division surgeon.[15] Lastly, the storage and distribution of blood, a medical supply, was accomplished by hospitals and the 406th Mobile Medical Laboratory respectively vice the medical supply depot and other medical supply units.

Desert Shield/Desert Storm

The U.S. Army went into Desert Shield/Desert Storm using its current organization and doctrine for medical supply. Brigades and battalions maintained basic loads of medical supplies in their aid stations and clearing stations. Divisions maintained sustainment stocks at the Division Medical Supply Office located in the MSB medical company. Above division, the in-theater medical logistics system consisted of five medical logistics units with forward deployed distribution points to facilitate support to hospitals and medical units.[16] United States Army Medical Materiel Command, Europe (USAMMCE) provided support to in-theater medical supply units and United States Army Medical Material Agency (USAMMA) provided backup to USAMMCE.

Desert Shield/Desert Storm is our most current experience for evaluating the efficacy of our current medical logistics doctrine in a Major Regional Contingency involving combat. Several significant events occurred during this conflict. First, medical logistics battalions experienced difficulty moving as they had to compete with other units for limited corps

transportation assets. Second, supply discipline was poor throughout the conflict causing excess of some items and shortages of other items. Third, the casualty estimates used were grossly inaccurate, significantly skewing estimates for medical supplies. And lastly, 'doctor desires' coupled with a policy of no constraints on it, nearly broke the medical supply system.[17]

CHAPTER III

THE CASE FOR A SEPARATE SYSTEM

Introduction

After reviewing the current literature and conducting interviews with both medical operators and logisticians, there are generally six reasons for separating medical supply management. They are: (1) medical supply is an integral part of the patient-care continuum, (2) control of medical supply by medical operators/logisticians facilitates a close relationship between them, (3) the technical nature and diversity of the product requires the specialized training a medical logistician receives, (4) the Geneva Convention provides a protected status to medical supplies which would be compromised, (5) medical supplies are a "life-or-death" commodity which by its nature requires separate management, and (6) separate management of medical supplies has historical precedence as its justification.

Historical Precedence

One of the most compelling arguments for a separate medical supply system is historical precedence. Throughout the history of the Army and medical department, medical supply specialists have controlled this commodity. Even when medical units fell under the control of a logistics command (as during WW II, Korea, and early Vietnam), medical specialists within the Medical Administrative Service (currently the Medical Service Corps) controlled these supplies. The legacy of the Vietnam War for medical operations and supply is a mind set that a separate medical logistics system, controlled by physicians, is a pre-requisite for adequate medical support. Much of the AMEDD's current thinking on medical operations and supply is traceable to our Vietnam experience. In a real sense, Vietnam can be characterized as the 'Golden Age' of medical operations.

Vietnam established the first precedent on 10 August 1967 with the realignment of the 44th Medical Brigade from the 1st Logistical Command and placed as a subordinate unit to the United States Army, Vietnam (USARV).[18] This separation became absolute with the establishment of the United States Army Medical Command, Vietnam in 1970. A more recent example occurred following Desert Shield/Desert Storm when the XVIII Airborne Corps detached the 44th Medical Brigade from the 1st COSCOM and attached it to the corps as a subordinate unit. In both cases by default, this included the Medical Logistics Battalion which managed medical supplies for the Corps.

Another historical precedent that proponents of the current system continue to stress occurred early during the Vietnam War. As part of a 1962 Department of the Army Headquarters reorganization, supply management for all supplies (including medical supplies) was consolidated for overseas commands. This occurred both in Europe and the Pacific. In the Pacific, the inventory control point (ICP) in Hawaii controlled all requests for supplies within that theater. This reorganization effort, separate from U.S. involvement in Vietnam, nonetheless set the stage for blaming the ICP for subsequent medical resupply problems encountered by U.S. forces in Vietnam. By the latter part of 1965, with zero balances and due outs increasing, and demand satisfaction rates falling, the Vice Chief of Staff directed the Surgeon General to study the problem and make recommendations to fix it. The Surgeon General found the ICP in Hawaii unable to provide adequate information and status for medical supplies ultimately bound for Vietnam.[19] Based on his findings, the Surgeon General recommended the reorganization of the existing system in order to put management of medical supplies back under medical control. The overall rationale for this reorganization is summed up succinctly by Major General Neel Spurgeon (Medical Corps): "It was again demonstrated, and most forcibly, that medical supply is part of the over-all medical support system, and that it must remain in that system, under professional medical control, if it is to be effective."[20]

Within the historical literature since World War II, there are also some studies which advocates point to as supporting the separation of Class VIII medical supplies.

1. Department of Defense, "Staff Study of the Military Medical Supply Systems", The Medical and Dental Group of the Department of Defense Supply Systems Study Project, The Munitions Board[21], Washington DC, 1 June 1953.

The purpose of this study was to look for ways to make the military medical supply system more efficient and effective as a whole. The board's charter was to recommend ways to maximize efficiency and economy in the medical supply system. Each service had its own medical supply system and supporting depot system. The focus of this study was to reduce the redundancies that existed between the different medical supply systems of each service. As a result, the report recommended the creation of the Armed Services Medical Materiel Agency (ASMMA), the forerunner of USAMMA, to control the materiel management of common medical supply for all services where: (1) each service would retain control of its own stock fund; (2) a directorate composed of members from all three services would determine medical supply policy; and (3) the Department of the Army would exercise management control of the agency.[22] The creation of ASMMA would consolidate the procurement process creating a single procurement agency, a single cataloguing system for inventory management, and simplify cross-servicing of medical supplies. The report also recommended a single service depot distribution system to achieve maximum supply efficiency and transportation economies.

Integration of common medical supply management was effected only at the depot level. Below the depot level, each service maintained control of its medical supply system. Factors such as location of forces, position of medical assets, and mission requirements precluded the integration of supply below the depot level.

This single service supply system for common items was not a new concept. Both the Department of Defense and the federal government expended considerable effort to find ways to more efficiently run the military from the late 1940s through the 1950s. Both the General Services Administration (GSA) and the Defense Supply and Service Administration[23], the forerunner of the Defense Logistics Agency (DLA), were created under this concept for the same purpose in the area of general supply.

2. Department of the Army, "Staff Study: The Fourth Service of Supply and Alternatives", Office of the Deputy Chief of Staff for Logistics, Washington DC, 26 September 1955.

This staff study was a reaction to the Hoover Commission recommendation of a "Defense Supply and Service Administration" to manage common items of supply and materiel used by more than one service (see endnote 6). The Department of the Army evaluated five alternative COAs[24]. It recommended the adoption of the 'Improvement of Existing Systems' concept for the medical supply system. This meant that the implemented recommendations of the Munitions Board remained intact and any recommended improvements would be applied to the current system.

3. Department of the Army, "Report by the Department of the Army Board of Inquiry on the Army Logistics System, Part A to Volume II -- Assets Management and Volume IV --General Management", Office of the Deputy Chief of Staff for Logistics, The Brown Board, Washington DC, November 1966.

This study looked at ways to make the Army's logistics' system more responsive to the users. It was part of an overall effort by the DOD to move away from a force predicated on mass mobilization toward a force combat ready for immediate deployment. Developing a logistics' structure capable of maintaining combat ready forces became the goal of this study.

The Board of Inquiry tasked the TSG to study the feasibility of a medical organization designed to provide general support to Army units within unified commands. TSG's proposal was an Army Health Services Command which would provide general support to the major commands worldwide. By supporting TSG's proposal the board supported the separation of medical supply from the general supply system.

4. Department of the Army "Medical Logistics Policy Proponency Study", United States Army Logistics Evaluation Agency, New Cumberland, PA, January 1994.

The purpose of this study was to determine who has policy proponency for medical logistics, the ODCSLOG or OTSG. The essential nature of medical logistics was at the heart of this study. "The problem was to determine whether medical logistics is most essentially logistics or medical in character."[25] The study concluded that it possessed both characteristics. It reaffirmed medical supply's uniqueness and the necessity for its control by medical authorities. "In short, the DCSLOG should be policy proponent for medical logistics, while TSG and appropriate other level medical command authorities should control and direct medical logistics activities."[26]

Doctor/Medical Logistician Relationship

This argument focuses on the necessity of a close relationship between the physician and logistician to provide the best care possible to the patient. Proponents maintain the best way to do this is to keep medical supply under the control of the physician. CPT Martin, in her research paper, maintained this is necessary in order to build trust and confidence between physicians and logisticians. She also maintains that this close relationship facilitates the requisition of non-standard items required by the physician. But her strongest argument rests on the assertion that the focus of the two systems is different. She maintains, "The integration of Class VIII into the general supply system mission will degrade this relationship

(physician/logistician) because the focus of the general supply system is on executing the battle. The focus of the Class VIII system is on the patient."[27] LTC Workman focused on the technical complexities of the commodity but essentially argues in the same way:

> A typical treatment area within a hospital is relatively small and is staffed primarily by health care technicians who have no formal supply training. They seldom use Army nomenclature in describing the items they need. Neither are they readily able to convert coded supply information into understandable English. As a result, logistics assistance for these customers is critical to the success of the medical mission. The logistician must be able to communicate in the customer's 'language', using correct health care terminology.[28]

In his view, the medical logistician, who works with medical professionals on a daily basis and whose sole focus is medical supply, is best able to support the physician.

Medical Supply As An Integral Part Of The Patient-Care Continuum

FM 8-55 Planning For Health Service Support defines health service support, now referred to as Combat Health Support (CHS), as a fully integrated and cohesive system consisting of medical regulating and patient evacuation, medical treatment and hospitalization, health service logistics (HLS) including blood management, medical laboratory services, dental services, veterinary services, preventive medicine services, combat stress control services, and command and control (C2). It is argued that separation of any of these functions would degrade the Army Medical Department's (AMEDD) ability to provide effective and efficient CHS to the forces. "In order to maintain the patient care focus of the Army Medical Department, the medical logistics function must remain an integral part of the health care system."[29] COL Livermore makes reference to past attempts to integrate medical supply with the general supply system and its resultant failure. Although, he doesn't specify the context of those attempts, one must reason he is making reference to the consolidation effort at overseas commands in 1962 which was already addressed in Chapter II. In terms of the patient-care continuum, he sums it up in the following way:

> The military medical logistics system can be viewed only as the general public views it--an integral part of the patient-care continuum.... Responsibility and accountability of the medical supply system must

> remain with the AMEDD. The soldier expects nothing less than the best patient care capability on the battlefield. This capability exists today with Class VIII as an essential pillar of the Army's health care delivery system"[30]

Technological Complexity and Diversity

The best way to describe these characteristics of the medical commodity is to quote those that support a separate system. CPT Martin very eloquently describes these unique characteristics in the following way:

> "The technical nature and diversity of the product warrant special handling and ***quality control***. Some medical materiel requires specialized storage such as vault, freezer, refrigeration, flammable, and corrosive areas. The medical commodity relies heavily on commercial availability items because of specific patient needs and physician preference. In addition, the future of medical logistics is moving toward producing oxygen and sterile fluids on the battlefield. This capability will require highly ***technical training*** which must be managed within the medical community for ***quality control*** reasons. Frozen and liquid blood is another sensitive area of medical supply the medical logistician is responsible to handle. The extreme sensitivity of the blood product requires control and ***quality assurance*** from a ***trained technician*** as well as a physician."[31] (italics and bold are mine)

The United States Army Logistics Evaluation Agency in a medical logistics policy proponent study put it this way:

> The medical commodity has characteristics that make it distinctly different from other classes of supply. Medical technology tends to be highly sophisticated, with a rapidly advancing state of the art. There is great diversity and fast turnover of technology and products in the market-place, making it difficult to operate and manage in terms of standard stockage lists. It includes pharmaceuticals and narcotics that are potency and shelf-life dated, that require security and controlled access, and that frequently require special storage conditions. Medical commodities and operations are subject to regulations and standards of the Food and Drug Administration, the Environmental Protection Agency, the Drug Enforcement Agency, and the Joint Commission on Accreditation for Healthcare Organizations.[32]

The key concepts in the above paragraph written by CPT Martin are *quality control/assurance* and *technical training*. These requirements and considerations are what separates medical supply from other types of supply. There are two other considerations not specifically

addressed by CPT Martin, but are significant to this commodity. They are the characteristics of perishability and security required for narcotics and other medicines commonly prescribed by doctors. These are important aspects of many medical supplies which strongly support the requirement of specialized training to properly handle and control this commodity. The issue of training will be directly addressed specifically in Chapter V. Suffice it at this point to maintain that specialized training is required for the proper quality control of some medical supplies.

Geneva Convention Considerations

FM 27-10 The Law of Land Warfare is the Army's authoritative guidance to its personnel on the customary and treaty law which applies to the conduct of war on land. The provisions in Chapter 4 of this manual deal specifically with the wounded and sick. Section III of Chapter 4 deals with those that treat the sick and wounded which includes medical units, medical establishments, personnel and transfers. It is in this section that the protective status of medical personnel and supplies is derived.

> Fixed establishments and mobile medical units of the Medical Service may in no circumstances be attacked, but shall at all times be respected and protected by the Parties to the conflict....The responsible authorities ensure that the said medical establishments and units are, as far as possible, situated in such a manner that attacks against military objectives cannot imperil their safety.[33]

This is taken from the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in the Armed Forces in the Field, 12 August 1949, which was ratified by the United States on 2 February 1956 and incorporated into FM 27-10.

CPT Martin maintains that integration of medical supply into the general supply system will compromise the protected status of this commodity. Both COL Livermore and LTC Workman refer to the protected status of medical supply, but neither contends integration would compromise that status.

'Life or Death' Commodity

Urgency of need is the crux of this position. Advocates argue that the urgency for medical supplies is greater than that of other supplies.[34] LTC Workman, in a strongly worded article, believes that only the current system can provide the support morally required to the patient:

> Patient-treatment professionals have a duty to demand that medical materiel, both consumable items and durable equipment, be available and ready for immediate use. Anything less than 100 percent effort to relieve suffering and save life is unacceptable to the Medical Department. Can you imagine a situation in which a physician calls for a defibrillator for the emergency treatment of a heart attack patient only to find when it arrives that it will not operate? Equipment must perform its specific purpose reliably any time it is called into use, and consumable supplies must be immediately available and meet quality levels established by the Food and Drug Administration. The current medical logistics system provides this kind of support and achieves a 70-75-percent demand accommodation rate and a 95-percent demand satisfaction rate.[35]

Another supporter of the current system, COL Livermore, argues in a much milder tone, but the message is the same: "While the delivery of other commodities--repair parts, food, clothing, and fuel, for example--can plausibly be delayed, medical supplies are a life or death commodity."[36] And, "Our society places the highest value possible on human life and accepts no compromises in the availability and quality of the medical products used by the clinician for patient treatment."[37]

Conclusion

The reasons for a separate and dedicated medical supply system focus on the unique characteristics of the medical commodity. Technical complexity, diversity, focus, and urgency are central to these arguments. Supporters for the current system see medical supply as a highly sophisticated and rapidly evolving commodity that requires highly trained technicians to manage and control. In their view, separating this commodity from the control of physicians would be morally unacceptable.

CHAPTER IV

THE CASE FOR AN INTEGRATED SYSTEM

Introduction

The forces for change have primarily come from outside the organization. This should not surprise anyone. The impetus for most change in any organization originates outside of it. Technology changes, a competitor introduces a new product, customers demand better service are just a few of a multitude of outside forces and influences that motivate change. The most common motivation for change in the Army has been war and our performance in them. War has forced the Army to adapt and adjust in the face of unforeseen and unexpected challenges.

A disturbing pattern emerges from these war experiences. First, we recognize a problem, then we solve it using the most expedient means available, once the crisis has passed, we go back to the way it was done before. The function of change is evolutionary rather than revolutionary. Take for example our experience with the bureau system organization of the War Department (currently Department of Defense) that emerged by the mid 1800s. The War Department consisted of semi-autonomous bureaus with independent authority and appropriations. For the most part, these bureaus dealt directly with Congress bypassing the Secretary of War (currently the Secretary of Defense). During the Civil War the bureau system failed miserably and confusion reigned until the position of Chief of Staff was created to focus and integrate their efforts. After the Civil War, the Chief of Staff position was abolished and the bureau organization re-established. Confusion reigned again during the Spanish-American War. The Chief of Staff position was again resurrected and a General Staff created to focus and integrate the bureaus efforts. The National Defense Act of 1916 sabotaged these reforms by limiting the scope and authority of those positions once again restoring power to the bureaus. In World War I and World War II the same pattern emerged.

It wasn't until the Reorganization Act of 1949 that the Army shook loose the noose of the bureau system, nearly 100 years and five wars later!

Why this long litany on organization in a paper dealing with medical supply management? Three fundamental reasons. First, to demonstrate that motivation for change tends to originate outside of an organization. Or stated another way, organizations tend to resist change and perpetuate the status quo. Second, to demonstrate the process is slow and characterized by 'two steps forward, one step back'. It is evolutionary instead of revolutionary. And third, the organization is the formal embodiment of a policy or system. By looking at the organization, one can gain an understanding of the procedures and thinking that permeate it and sustain it. When one looks at medical supply, all of these hold true. The idea of integrating medical supply into the general supply system is either not entertained or resisted by those in the Medical Corps and Medical Service Corps. Those looking at integration positively are generally outside of the sphere of self interest in the current system.

Staff Studies

The first serious attempts to look at improving the Army's logistics system and explore the integration of supply management is reflected in a series of studies conducted shortly after the end of World War II. This review of the Army's logistics system was part of a much larger review of the entire Department of the Army organization and procedures. The catalyst for change was Public Law 253 known as The National Security Act of 1947 followed by The Commission on the Organization of the Executive Branch of the Government (Hoover Commission) both enacted by the 80th Congress. The outside threat of forced change compelled the War Department and the Department of the Army to conduct numerous studies and play 'catch-up' in an effort to control its own destiny.

In 1948, the Director of Logistics (today's equivalent of the DSCLOG) conducted a study to determine a viable wartime logistics organization. Most senior officers and civilians outside of the power structure of the bureau system recognized its inadequacies and sought to correct them. Those with a vested interest in the system, especially the Technical Services[38], failed to acknowledge the problems and worked to retard efforts to change. The Director of Logistics concluded that the establishment of a Logistics Command was necessary to ensure proper control, coordination, and synchronization of the logistics effort. "The study tentatively concluded any such organization would require: (a) an additional staff level to coordinate the Technical Services, or (b) adequate adjustments in the Technical Services to correct overlapping and duplications of functions so that there would be a single service for procurement, another for supply, another for construction, etc."[39] The first recommendation would resurrect an ASF organization to overlay the bureau system. The second, would by default, eliminate the inefficiencies of the bureau system and would encompass the integration of all supplies, including medical supply, into one general supply system.

The Army Comptroller completed a staff study in July 1948 that recommended among other things a limited span of control, a single level functional staff, integration of logistic and strategic planning, and reduction of overhead. The impact of these recommendations would break the back of the bureau system by eliminating the semi-autonomous operations of the Technical Services. Most staff comments were favorable whereas the Technical Services argued against any change.[40]

Hoover Commission

The Hoover Commission[41] also played a direct role in attempting to improve the Army's logistics system. One of the problems identified by the commission was the lack of a uniform (integrated) supply system.

> ... each technical service of the Department of the Army operates a separate supply system, each promulgating its own policies, methods, and procedures,

> .... Throughout the history of the Army, the technical services have become almost autonomous for purposes of supply and have acquired power they have no desire to lose.[42]

The commission's recommendation for correcting this problem centered on an integrated and unified supply system. "There should be a single supply organization in the Army which would operate a coordinated and integrated system of supply based upon principles of effective departmental control, maximum flexibility and economy, similar to the Navy supply system."[43]

Survey of the Department of the Army

Another report favoring a unified and integrated supply system was the Survey of the Department of the Army report conducted by the management engineering firm of Cresap, McCormick, and Paget (CMP) out of New York and Chicago. Although this report made many of the same recommendations as the Hoover Commission, it met with a lot of institutional resistance within the Army.[44] This, however, does not lessen the significance or validity of the findings. The primary purpose of this survey was to evaluate the effectiveness of the organization of the Department of the Army and its internal operating procedures. As part of the overall strategy of the survey, CMP looked at the Technical Services organization and operations. Based on their assessment, CMP recommended the transfer of the medical supply function from the Medical Department to the Quartermaster Service.[45]

Medical Logistics Policy Proponency Study

This staff study conducted by the United States Army Logistics Evaluation Agency in 1993 and 1994 and cited in Chapter III as supporting a separate system, in a very important way suggests that changing conditions offer the potential for integration of this supply. The study briefly lays out the arguments for a separate system and then caveats its conclusions with the following statement:

> In spite of the lessons from history and prior studies, the issues involved in this question (separate medical logistics system) need to be looked at

> again in light of today's working environment, with new rules and new possibilities, arising from the downsizing of the force, transition to a Power Projection strategy, emergence of new technologies and insights, severe limitations in available funds and other resources, and the concomitant need for more efficient organizations and operations.[46]

From the tone of this statement, one can see clearly that the team conducting this study, while affirming the current system, recognized at the same time its potential obsolescence given the changing conditions both within and outside of the Army. Interestingly enough, the team explicitly recognized the need for more efficient organizations and operations implying that the current system is not sufficient.

The Concept of an Integrated Logistics Organization

In the January-February 1993 Logistician Magazine, a controversial article written by James S. Emery, appeared exploring the integration of CSS functions into a single branch he called the "Logistics Corps".[47] Emery sees this consolidation of CSS functions as an inevitable future event driven by a shrinking Army, forced to look for economies in the face of continual budget cuts. He envisions the integration of the transportation and supply functions as the first logical step in this integration. This consolidation of supply includes medical, ammunition, signal specific, and military intelligence specific supplies. Emery maintains the logistics community has already moved in this direction with the establishment of multi-functional support battalions at both division and corps level. He emphasizes the role of improved information management systems coupled with the Army's focus on distribution management as the enablers of this consolidated system.

Conclusion

Support for an integrated supply system has generally resided outside the medical community. Non-military personnel have generally spearheaded the effort. This should not surprise anyone. With the best of intentions, the medical community tenaciously clings to the current system. But fiscal realities coupled with high quality recruits and improved

information technologies may render the current system too expensive to justify. The time may be right to integrate medical supply with the rest of the Army's supply system.

CHAPTER V

CRITICAL COMPONENTS OF THE MEDICAL SUPPLY SYSTEM

Introduction

This chapter will look at the components of the medical supply system. At the heart of this system is the training medical logisticians receive and the automated system used to manage medical supply. The purpose is to provide the reader a base of knowledge concerning these critical system components.

Training

The uniqueness of medical supply should be reflected in the training and qualifications required by those in the medical supply field. It follows that the complexity and technical nature of this supply would require those managing it possess certain qualifications and pre-requisite training. Ironically, there are no additional qualifications necessary for soldiers going into the medical supply specialty than for those going into the general supply specialty. This includes both officers and enlisted personnel. According to MAJ Theresa Cantrell, class advisor for the 8B-F20 course (70K course), the AMEDD is considering a general math proficiency requirement for enlisted personnel entering the field, but at present, there are no additional pre-requisites. Therefore, we can conclude, that a soldier qualified to enter the general supply field is equally qualified to enter the medical supply field.

What separates the medical supply specialist from the general supply specialist is MOS training received after selection for the specialty. Training is critical and includes both formal training at schools and informal training received on the job. Specific commodity training a medical supply specialist receives at Advanced Individual Training (AIT) for enlisted or the Basic and Advance Courses for officers is what makes them unique in comparison to those in

the general supply field. Experience working with the supply also affords valuable knowledge necessary for the medical supply specialist to properly manage this commodity.

There are also additional courses available to the medical supply specialist for his professional development. One such professional development course is the Internship Program for officers, warrant officers, and senior noncommissioned officers in the medical logistics field. This program provides advanced training in management techniques for use in joint operations at all levels of war. These courses are sponsored within the different services and with educational institutions throughout the country. Medical logisticians compete for these programs, but they are optional and not required by the AMEDD.

Experience on the job is another type of training the medical supply specialist receives. And many would argue, the most important training a medical supply specialist receives.[48] It is on the job where the supply specialist works most closely with the doctors he supports. This is where the physician/logistic relationship first forms. Formal training in schools, at best can only familiarize the soldier with the uniqueness of the supply he will manage and control. It is on the job where he learns the unique characteristics of his commodity.

Theater Army Medical Management Information System (TAMMIS)

The inventory control system currently used by the Medical Service Corps to manage medical supply is TAMMIS. TAMMIS consists of six primary applications which are further divided into two subcategories: (1) medical logistics systems and (2) patient management systems.

The medical logistics applications are:

Medical Supply (MEDSUP)

Medical Maintenance (MEDMNT)

Medical Assemblage Management (MEDASM)

The patient applications are:

Medical Patient Accounting and Reporting (MEDPAR)

Medical Patient Accounting and Reporting - Command and Control (MEDPAR - CC)

Medical Regulating (MEDREG)

TAMMIS operates on the UNIX operating system using the Informix database management system. The C programming language is used for developing its programs and routines. It runs on several different hardware platforms: (1) Army Tactical Command and Control System - Common Hardware/Software (ATCCS-CHS); (2) The Corps Theater Automated Data Processing Center - Phase II (CTASC II); (3) Everex 486 (COTS); and (4) ATT 3B2. For this study, we are primarily concerned with the medical supply and medical assemblage management applications.

Parts of the TAMMIS system have been in use since 1989. The MEDSUP application was first used in Panama during Operation Just Cause. Since that time medical units and hospitals have used TAMMIS during peacetime, wartime, and humanitarian assistance operations.

The MEDSUP application allows automated management and requisitioning of medical supplies and materials. It is used at the Division Medical Supply Office (DMSO), Medical Logistics Battalions (MEDLOG BN), and at both fixed and mobile hospitals located from the Corps back to the Zone of Interior. Like other automated inventory applications, MEDSUP offers the advantages of speed, accuracy, and increased productivity.

The MEDASM application automates the accounting for medical end items for medical units authorized under a Table of Organization and Equipment (TOE). Most important, this

application provides readiness status for the unit commander. Like MEDSUP, MEDASM offers the advantages of speed, accuracy and increased productivity by eliminating the ponderous task of manually accounting for medical assemblages.

One of the biggest problems with the TAMMIS system is its inability to interface with other automated logistics support systems. In fixed hospitals, this does not present much of a problem. In the field, it does. USALEA identified this shortcoming in early 1994. The problem still exists today but the necessary software changes are in process to allow TAMMIS to interface with the other systems in the corps and division. This is significant for both readiness reporting and asset management at these levels.

Another shortcoming with the system is its level of application. Currently, the lowest level for automated medical supply and assemblage management is in the DMSO located in the division's Main Support Battalion (MSB). Inventory and assemblage management in the Forward Support Battalion (FSB) and the maneuver battalion is a manual process. Medical logisticians and operators identified this requirement early on in the system's development, but funding constraints precluded fielding this capability. The medical logistics community is currently developing a new software package, called TAMMIS MEDLOG-D, to automate management of these commodities down to the Battalion Aid Station (BAS) level.

Defense Medical Logistics Support System (DMLSS)

DMLSS is a DOD mandated system whose purpose is to provide integrated medical logistics support to all services from the unit to the wholesale level. This system will replace TAMMIS and will be used during peacetime and war in both fixed and deployable facilities and units. This system would standardize medical logistics management among all the services and would complement the Single Integrated Medical Logistics Management (SIMLM) concept in Joint Pub 4-02.1. The system is expected to provide total asset visibility among

the services and will utilize the latest tracking technologies such as the automated manifest card and radio frequency tags.

Single Integrated Medical Logistics Management (SIMLM)

SIMLM is a doctrinal concept whose purpose is to provide a centralized medical logistics manager for all services in a theater of operations. In the absence of a single integrated manager, each service would be responsible for providing support to its units. It is generally recognized that the Army is the only service configured to act as a SIMLM. Typically, a medical logistics battalion or similar type organization would provide that centralized support to all services operating within the theater.

SIMLM is a relatively new doctrinal concept for the medical community, although providing joint and combine medical supply support is not new. We saw examples of this type of support during World War II, Korean War, Vietnam War, and most recently Desert Shield/Desert Storm.

CHAPTER VI

ANALYSIS AND CONCLUSIONS

Introduction

Are the arguments for a separate medical supply system sufficient? The answer to this question is the focus of this chapter. The first part of this chapter will analyze the sufficiency of the traditional arguments put forth by the proponents for a separate system. The last part of the chapter will summarize the results of this analysis.

Historical Precedent

Is the historical precedent for a separate medical supply system as clear and unambiguous as advocates would like their readers to believe? On the surface, these historical examples appear convincing and final. Spurgeon, as well as many others in the medical profession, believed the primary cause of the problems were the direct result of treating medical supply like any other general supply. But is this the primary reason for the ICP failure and supply problems in Vietnam? The answer is not quite as simple as Spurgeon and others would lead one to believe. There are many other documented events which contributed to the problem and which cast doubt on so simple an explanation as 'the treating of medical supply like any other general supply'. For example, Spurgeon enumerates several other reasons for the problems experienced in 1965-66 not related to the supply situation at the ICP in Hawaii. Among them are the lack of qualified medical logistics personnel in Vietnam, unforecasted mission requirements (MEDCAP Program and upgrade of capabilities of in-country hospitals), the delayed deployment of the 32d Medical Depot, and doctor induced shortages.[49] Additionally, two other events exacerbated this situation as well. First was the rapid build-up of American forces in theater in 1965-66 which not only stretched the medical supply system but the logistics system as a whole. Second, the decision by General Westmorland to strip units of their organic logistics capability which required them to come to

fixed supply points for their logistics support.[50] In regard to the rapid build-up of forces, the Army's historical track record for logistics support has not been good. Even during our latest experience in the Gulf, with medical supplies controlled by medical personnel, severe shortages of certain commodities plagued medical units throughout the build-up period. A GAO investigation concluded that "Due to problems with equipping and supplying units in theater, the Army was not adequately prepared to provide medical care prior to the start of the ground campaign, and the Army's ability to provide adequate care had the war lasted longer or had the predicted number of casualties occurred would have been questionable."[51] Another GAO investigation put it this way: "We found that understaffed and inadequately supplied and equipped medical units in Operation Desert Storm might not have been able to provide adequate care if the predicted number of casualties had occurred."[52] If the Army's experience in the Gulf is representative, we can attribute medical supply problems experienced in Vietnam to a logistics system ill-prepared for a rapid force build-up. These problems experienced during the build up, would have occurred regardless of the consolidation at the inventory control point in Hawaii. As the theater matured, a more consistent level of logistics support was achieved and maintained.[53] Given this, one would be hard pressed to supply sufficient evidence that the improvement in the medical supply situation in Vietnam resulted from the change of control and management of the medical commodity.

Doctor/Medical Logistician Relationship

The importance of a close relationship between supporter and supported is critical regardless of the commodity or service. As a supporter, knowing and understanding your supported unit is a necessity for accomplishing the mission. This requirement is not unique to medical supply. This is why logistics planners and operators throughout the depth of the battlefield are closely integrated into the combined arms team. It does not follow that the integration of medical supply into the supply system as a whole would 'de facto' degrade the physician/logistician relationship anymore than the integration of logistics support into a

support battalion degrades the fighter/logistician relationship. The bond between supported and supporter is cemented by working and training together. As long as integration of the medical commodity does not change this working and training environment, the physician/logistician relationship will not suffer.

Medical Supply As An Integral Part Of The Patient-Care Continuum

Whether or not Class VIII is integrated into the general supply system, it still remains part of the patient-care continuum. The real issue revolves around who can best manage it. For COL Livermore, the answer is clear--the AMEDD. He reasons historical precedent and the AMEDD's 'patient focus' justify AMEDD's management of it. As discussed earlier, the conclusions drawn from the experience of integrating medical supply at overseas commands from 1962-1965 are clearly erroneous. We need not re-visit that historical event again. What remains is the issue of 'patient focus'. CPT Martin summed it up as follows:

> ...the focus of the general supply system is on executing the battle. The focus of the Class VIII system is on the patient. The general supply manager will be engrossed in the other classes of supply necessary to arm, fuel, and feed the fighting forces.[54]

It is clear CPT Martin believes the integration of medical supply into the general supply system will result in a diluted 'patient focus'.

'Patient focus', then, is the next question that must be addressed. Will 'patient focus' potentially diminish with the integration of medical supply into the general supply system? Will resource management considerations and other supply priorities take precedence over the patient as LTC Workman and COL Livermore maintain? Or put another way, will resource management considerations run counter to what's best for the patient? It's difficult to imagine that 'patient focus' will automatically diminish because soldier 'A' does medical supply instead of soldier 'B'. Anyone who maintains this position implies that the Army's logistics focus is blurred and not on the soldier, regardless of whether he is in a foxhole or a

hospital bed. Simplistic platitudes of this sort represent very narrow and self-serving thinking. An organization's focus is a function of its mission and commander's intent (vision). Assuming the commander is competent, 'patient focus' will retain its priority regardless of who executes the mission. It is also ignorant to maintain that efficient management practices and patient focus are not compatible and mutually exclusive. That somehow one degrades the other. On the contrary, they compliment each other! Efficient management practices will enhance support to the patient.

Explicit in CPT Martin's argument is the notion that the current system is better because of its single focus. Implicit in the argument is that the system's single focus means it doesn't compete with any other system ensuring the best possible support to the physician and patient. This is true only for the assets under the immediate control of medical authorities. Otherwise, the idea that the medical supply system doesn't compete with other systems is simply mistaken. There is a limited amount of both strategic and tactical transportation available to support a theater of operations causing a commander to prioritize the movement of supplies, personnel, and equipment. Movement of medical supplies competes with all others for this limited supporting resource. The "separateness" of the current system may even work against itself. Commanders and logisticians unfamiliar with the commodity and having no stake in the planning, coordination and management of it, will devote little attention to synchronizing this commodity with the rest of the combat service support effort.[55] This synchronization is necessary because above division level, medical logistics units are dependent on corps transportation to distribute its commodity on the battlefield. Even at division level, requirements for medical supplies will often exceed the organization's internal capacity to distribute, thereby necessitating the use of external transportation assets. The lack of corps transportation to support medical units was a constant complaint during the Gulf War. This situation is not likely to change. The Army's emphasis on reduction of inventory levels through enhanced battlefield distribution will continue to place demands on this

constrained resource. Not being fully integrated with the rest of the logistics community will complicate the necessary orchestration of the logistics' effort. Integration, not separation, will facilitate support of a battlefield increasingly dependent on distribution.

One more thought concerning 'patient focus' is pertinent at this point in the discussion. 'Patient focus' was surely the primary reason for the adoption of a policy to allow doctors to request any and all medical supplies they determined necessary to accomplish the mission during Desert Shield/Desert Storm.[56] However, did this policy facilitate support to the patient? No! In fact, the policy almost broke the medical supply system which was ill-equipped to handle so many diverse and non-standard requests. This poor management decision that imposed no controls upon the physician and his 'desires' created an unnecessary burden on the system and degraded its overall capability. It created both unmanageable excess and shortages of medical supplies. The best of intentions have ruined many organizations and 'patient focus' by itself is the best of intentions. Good intentions encapsulated within sound management policy, principles and practices will ensure the best support available to those that need it. The medical logistician is not the sole proprietor of this formula for success.

Technological Complexity and Diversity

The concepts of quality control, technical training, perishability, and specialized handling eloquently raised by CPT Martin are not unique to medical supply. For example, distributing and storing small arms repair parts, ammunition, and various POL products include aspects of all four of the above considerations. On the surface, a commodity like Class IX repair parts, appears non-technical requiring a minimum amount of training to manage and control. But looking below the surface a different picture emerges. Batteries, circuit cards, and major assemblies (engines, transmissions, transfers, etc.) require special handling and packaging for disposal and evacuation. Image intensifier tubes for night vision goggles and night sights for TOWs require secure storage no less than that required for

narcotics. Additional storage and supplemental accountability procedures are required for pilferable items, like Rifle/Handgun magazines, common expendable supplies, and bench stock items (screws, nuts, washers, etc). Because of their perishability, batteries require special storage and rotation of stocks to avoid unnecessary loss. These are just a few of the many special considerations that must be learned by those who manage and control this class of supply. The point of this discussion is not to argue one class of supply over another. The idea is simply to show that inventory operations and management require training regardless of the commodity. And that the apparent gap between medical supply and other types of supply is not so great as one might initially think.

Geneva Convention Considerations

Does the integration of medical supply into the general supply system compromise its protected status? Probably not. The ideal situation is one of no constraints. One where we possess unlimited medical capacity, where both sides possess places on the battlefield immune from friendly and enemy fire, and where each side interprets and respects the various Geneva and Hague Conventions alike. Obviously, this ideal situation rarely exists. If it did, we could execute medical operations in a vacuum, totally separate from everything else! The point is that medical operations do not operate in a vacuum and that fact does not obviate its protected status. Medical supply, like medical operations, is protected regardless of its location or who manages it (assuming the enemy respects the conventions). Belligerents cannot knowingly target or destroy them. The key concept is 'knowingly'. Of course medical supply could inadvertently become a target if it is stored or transported with other types of supplies which do not possess a protected status. It is this type of situation that most concerns medical personnel. At division and below, medical units and medical supplies are co-located with other divisional units. This has not to the author's knowledge compromised their protected status. Above division, the primary means of moving medical supply is corps transportation assets. These trucks and helicopters are not dedicated to medical supply

exclusively and unless we are willing to dedicate these assets for that purpose, the normal pattern of events will have them moving multiple types of supplies simultaneously throughout the depth of the battlefield.

With the advent of improved information management systems, storage of this commodity with other supplies becomes a moot point as well. An inventory can be stored in multiple locations and controlled by the same inventory control system. With the Standard Army Retail Supply System-Objective (SARSS-O) and its ability to manage laterally as well as horizontally, the division, in effect, has one inventory stored in multiple locations. Integrating medical supply into the general supply system does not necessitate its co-location with other types of supply. The commander retains the flexibility to store the inventory where it can best support those it serves.

One last observation concerning Geneva Convention considerations. Both in Korea and in Vietnam, medical personnel and equipment were likely enemy targets. The Geneva Convention provided little to no protection in these wars. And what about the future? If the past is any indication of the future, the battlefield is likely to become more lethal throughout its depth. Lieutenant Commander Paul Lund, Medical Service Corps, United States Navy, in writing about medical support doctrine and future combat writes:

> Larger combat areas, coupled with weapons of increased range and accuracy, will reduce or even eliminate communications zone or other rear area sanctuaries previously enjoyed by support forces, such as medical units. Moreover, weapons of increased range and over the horizon capability will reduce the need for 'shooters' to personally see their targets. Chances will increase that medical units will be targeted due to their large radar profile no matter how many red crosses are shown. As risk to medical units increases, their ability to attain full health care treatment potential will decrease.[57]

In spite of the Geneva Conventions and the other conventions incorporated into the Law of Land Warfare, many believe medical units will become targets in future conflicts.

'Life or Death' Commodity

How well does this "life or death" commodity argument hold? If it's a choice between blood or plywood, the course is fairly clear (or is it?). However, does the same hold true for tank rounds verses motrin? Probably not! But this business of trying to compare the urgency of one type of supply verses another is simply absurd. The bottom line is that urgency is situation dependent. Certainly, it is just as unconscionable for a tank to run out of fuel or ammunition, exposing it's soldiers to certain death or injury (putting an avoidable strain on the medical system), as it is for a hospital to run out of antibiotics! The fact that urgency is situation dependent argues for greater coordination and synchronization of limited resources which includes all the logistics functions and operations.

'Urgency of need' is also a function of the position one holds. For the surgeon about to operate, certainly having the proper surgical tools on hand is his most urgent need. For the infantry soldier preparing to defend his position, plywood and sandbags are among his most urgent needs. For the tanker, it may be fuel and ammunition. Given this, it is certainly understandable why medical personnel argue for the ascendancy of medical supplies over other types of supply. In fact, from their position, they feel a moral responsibility to do so as evidenced by the passion in which LTC Workman, MG Spurgeon, and others argue their point. But their point of view is simply not the whole story and in some ways, is very myopic. LTC Workman's attitude that medical resource management should not be subject to economic analysis is simply naive. The only time this attitude could be tolerated is in a situation where resources are not constrained. But such a situation simply does not exist. Take for instance triage, it is a form of rationing, an attempt to optimize the existing medical resources because the demand for these resources exceeds the available supply. This reality of constrained resources is more the rule than the exception and therefore questions of effectiveness and efficiency are pertinent and necessary. For therein lies the real 'life or death' considerations. What good is it to have excess un-needed supplies? Effective and

efficient management of resources is the best means for assuring optimal distribution and positioning on the battlefield. Efficient resource management as a measure for the medical supply system and the logistics system as a whole should be the norm. Our Gulf experience demonstrated unequivocally the need for a shrinking Army to lighten its logistics' tail to include it's medical logistics' tail.

This superiority attitude prevalent in medical circles toward medical supply can lead to poor decision making that hurts not only the medical supply system but the logistics' system as well. Take for instance some of our experiences during the Gulf War. A GAO investigation found one hospital in the Gulf with 120 days of medical supplies on hand! Certainly the medical logisticians and doctors of that facility felt justified in acquiring that quantity of supplies. Urgency of need was probably a significant motivation as well as confidence in the current medical logistics system! Clearly this was poor decision-making. At best, the hospital was manned and equipped to manage a 15 DOS inventory level. Discounting loss, pilferage, and obsolescence prevalent in handling an inventory level greater than existing resources can manage, those 'extra' 105 DOS were not available for use anywhere else in the Gulf. This was not an atypical example. Lack of supply discipline was prevalent in the Gulf causing critical shortages of some supplies and creating excess for others.[58] And this, by a system managed entirely by medical doctors and medical logisticians.

Training

Training is what separates the medical supply specialist from the general supply specialist. However, the solution here is simple. Give the general supply specialist the same training and the medial supply specialist loses his uniqueness! Since there are no additional pre-requisites for entering either field, the building blocks for each system are the same.

Inventory Control System

The MEDSUP application in TAMMIS is generally liked by the medical logistics community that uses it. We must ask at this point whether it is necessary for the Army to use a different inventory control system (ICS) to manage this supply. Even if medical supply remains separate from the general supply system, do we really need a different ICS to manage and operate it? Probably not! Most automated inventory control systems perform the same types of operations.[59] Medical supply could be managed satisfactorily on a variety of automated systems.[60]

This whole question of inventory control systems is a moot issue however, given the DOD's decision to go with a service integrated system. TAMMIS will eventually be replaced by the DMLSS system. This is a positive development and in no way diminishes the findings of this study. In fact, it compliments the findings by demonstrating the soundness of an integrated system. Total asset visibility provided by the DMLSS system is beneficial and will result in greater efficiencies and economy.

New Conditions

Not since the end of World War II and the development of atomic weapons has the Army faced what can be called a new world order. The fall of the Soviet Union and its expected peace dividend coupled with the Gulf War experience has forced the Army to re-evaluate how it does business. The result, a new strategy stressing force projection rather than forward deployed forces, and two near simultaneous Major Regional Contingencies (MRC) instead of two simultaneous MRCs. This fundamental change in the Army has caused fundamental reassessments of the logistics system and its ability to support the Army given its new strategy. This next section will focus on the initiatives taken to effect improvements in the system.

Battlefield Distribution (BD) and Velocity Management(VM)

BD and VM are the logistics community's answer to the shortcomings experienced during the Gulf War and the change in strategy from a forward deployed force to a power projection force. This is significant because both these management philosophies attempt to correct deficiencies in the system that medical logisticians have used as reasons for keeping the medical supply system separate. With the increased focus on supporting the soldier in the field and increased efficiency, it is hard to argue that the general supply system is not responsive, flexible, and user friendly.

Battlefield Distribution was an initiative introduced after the Gulf War by MG Robeson, Combined Arms Support Command (CASCOM) commander, that focused on improving the theater distribution system. He envisioned a fully integrated distribution system that would provide the warfighting commanders maximum throughput and total visibility of supplies, personnel, and equipment. The original BD concept included the integration of medical supplies into the BD organizations. BD attempted to address the distribution and accountability problems experienced in the Gulf War, but it never fully got off the ground due to its attempt to make changes to logistics organizations that were tenaciously resisted by many in the logistics community.

In January 1995, a better received and a more comprehensive solution, called Velocity Management (VM) was initiated. VM is a combination of BD, Total Quality Management (TQM), and The Theory of Constraints (TOC).[61] It a management philosophy that stresses continual improvement, precision and speed over mass, and identification and elimination of inefficient processes in the logistics system.[62] "It applies a number of management methods used throughout industry to reduce large resource investments and reduce cycle times for all logistics processes."[63] The program has three major components: (1) reduction of order ship time (OST); (2) reduction of repair cycle time (RCT); and (3) increase and build confidence in

the system thereby allowing the reduction and/or elimination of inventories at every level in the system. The goal of the program is a reliable, flexible, responsive, and customer-focused logistics system.[64]

VM has received significant support from the highest levels of Army leadership and has been very successful in reducing inventory and its associated costs. Some extracted statistics from June - August 1997 will illustrate the point:

All Priorities: OST For FORSCOM Class IX, No Backorders

Location	Jun-Aug 97	Baseline
Bragg	8.5	26.5
Campbell	7.9	20.4
Stewart	9.3	22.4
Polk	11.7	24.2
Drum	5.6	23
Hood	10.8	23.7
Lewis	11.1	26.8
Carson	11.5	20.8
Riley	12.8	18.4
Irwin	13.4	22.3

All Priorities: Overall OST For Class IX, No Backorders

Location	Jun-Aug 97	Baseline
CONUS Active	12.1	22.4
OCONUS	21.9	33.7
CONUS	17.3	33.4

All Priorities: OST For OCONUS MACOMs Class IX, No Backorders

Location	Jun-Aug 97	Baseline
USAREUR	21	30.3
USARSO	19.1	37.6
EUSA(Korea)	24.7	34.5
USARPAC	19.3	35.9
Other	25.2	48.4

**All statistics were extracted from the Velocity Management Section of the CASCOM Homepage: www.cascom.army.mil

In every case, organizations have significantly reduced lead-time for repair parts. This is important given that inventory level is directly proportionate to lead-time for parts. With this level of performance and continued improvements in the future, one can make a strong case for integration of medical supply into the general supply system. Medical operators and logisticians can no longer use poor performance as a reason to keep medical supply separate!

Prime Vendor

Prime Vendor (PV) is a program that has significantly altered the conditions upon which the medical supply system operates.[65] And, in fact, the PV program supports the integration of medical supply into the general supply system in two ways. First, PV shifts much of the inventory burden to private contractors lessening the requirement for Army managed stocks. This is particularly significant in the area of pharmaceuticals where the majority of these supplies are Potency and Dated (P&D) type items. Vendor Managed Inventory (VMI) provides medical units a source of supply for pharmaceuticals for both deployment and sustainment. The contractor guarantees a set amount of inventory and must be able to ship it within three days of the demand. The burden of warehousing, rotating, and caring for this shelf-life type inventory is on the contractor. Second, PV guarantees short lead-times, in many cases as little as 72 hours, for medical supplies under contract, making possible the reduction of inventory at all levels. Smaller inventories require fewer personnel to maintain as well as reducing loss, pilferage, and obsolescence.

Conclusions

There are no substantial reasons; historical, organizational, or technical, for the separation of medical supply from the general supply system. The potential for integration into the general supply system was recognized as early as World War II. The time is ripe for change. A shrinking budget, coupled with improvements in information management systems and high quality soldiers, is the recipe for change. It is no longer necessary nor cost effective to have a separate medical supply system. In answering the auxiliary services' (which includes

the Surgeon General) objections to its recommendation to integrate supply management under the Quartermaster Corps and procurement management under the Ordnance Corps, the Hoover Commission summed up the issue best:

> If it is agreed that the battle is the pay-off and that the battle is decided ultimately by weight of metal and application of weapons against the enemy, then certainly there is no more crucial specialty in the Army than the application of these weapons. If the ground combat specialists --charged with responsibility for execution of the Army's main mission --can safely entrust supply of their crucial weapons and equipment to the central procurement and supply bureaus of Ordnance and Quartermaster, it would appear that the auxiliary services of Engineers, Signal, Transportation and Medical could rely on these bureaus. It is, of course, objected: "How can a Quartermaster know enough about signal equipment to supply it or, an Ordnance Officer enough about medical equipment to buy it?" The answer is that the same military and civilian specialists who are now engaged in this process should be transferred to or detailed in Quartermaster and Ordnance for this purpose.... The real specialty in procurement is procurement. The real specialty in supply is supply.[66]

Endnotes

[1] Many readers may take issue with me on this point. Some will inevitably argue that the level of cooperation between the different logistic functions has never been better. That at all levels, communication and coordination is the norm, not the exception. Much of that is true but only because it has been forced on the different branches by necessity and outside forces (lack of money, pressure from the top to become more efficient, the importing of business practices into the military, etc.). The functional organization in itself, does not enhance synchronized and coordinated efforts. The level of cooperation is a function of what each believes is necessary to satisfy outside influences and to accomplish its mission.

[2] For a more complete discussion of future concepts see the AMEDD Homepage at www.medcom.amedd.army.mil/

[3] "Medical Initiatives in the Division XXI AWE Doctrine", Information Paper AMEDD Homepage, pg 1.

[4] Doctrinally, the Ammunition Transfer Point (ATP) is not a stockage point for ammunition. Ideally, it is a point on the ground where ammunition is transferred from Corps transportation assets to the using unit. In reality, this rarely happens and inevitably the ATP becomes a temporary storage location for ammunition destined to using units. This occurs for several reasons. First, it seldom happens that receiving units and incoming corps transportation assets link-up simultaneously. Second, receiving units will often not take all the ammunition either for lack of haul capability or they simply don't need that amount. Third, ammunition not moving through the ATP, like small caliber munitions and grenades for example, are stored until issued to units. Given this, I have chosen to include ammunition as an inventory in the FSB.

[5] The same can be said about ammunition which is as unique and technically complex as medical supply.

[6] US Army in World War II, The Organization and Role of the Army Service Forces, pg 40.

[7] Ibid, pg38.

[8] The 80/20 principle was first observed by Vilfredo Pareto while he was studying the distribution of income and wealth in Italy. He discovered that a large percentage of the country's wealth was concentrated in the hands of a small percentage of the population, roughly 80/20. This general trend has been observed in a variety of different business applications including inventory. Although it is rarely an exact ratio, the pattern holds remarkable true. The concept is especially useful for the classification of inventory and for forecasting requirements. For a more complete discussion of this concept see Ronald H. Ballou's Business Logistics Management, Prentice Hall Press, 1992.

[9] Medical Department, United States Army, Medical Supply in World War II, Prepared and published under the direction of LTG Leonard D. Heaton, Office of the Surgeon General, Department of the Army, Washington DC, 1968, pg 345.

[10] US Army in World War II, The Organization and Role of the Army Service Forces, pg 95.

[11] Ibid, pg 95.

[12] Thompson, Julien Major General, The Lifeblood of War, Logistics in Armed Conflict, Brassey's London, England, 1991, pg 107.

[13] Cowdrey, Albert E., The Medics' War, United States Army in the Korean War, Center of Military History, United States Army, Washington DC, 1987, pg 75.

[14] Spurgeon, Neel. Medical Support Of The U.S. Army In Vietnam 1965-1970. Vietnam Studies. Department of the Army, Washington D.C., 1973, pg 175.

[15] Ibid., pg 98.

[16] "Operation Desert Storm: Full Army Medical Capability Not Achieved" Report to the Chairman. Subcommittee on Military Personnel and Compensation, Committee on Armed Services, House of Representatives, United States General Accounting Office, Aug 1992, pg 15.

[17] Ibid., pg 16.

[18] Spurgeon, Neel. Medical Support Of The U.S. Army In Vietnam 1965-1970. Vietnam Studies. Department of the Army, Washington D.C., 1973, pg23. For a detailed account on the evolution of this command relationship and realignment see Chapter 1 of this book. MG Spurgeon, who was a Colonel at the time and USMACV surgeon, argued for a separate medical command in Vietnam. Although unusual, senior medical officers in Vietnam argued that the USARV surgeon should be given full command and control responsibilities. Spurgeon gives a detailed but somewhat biased account of how and why this realignment occurred. This issue of whether medical operations should be treated as a logistics function separate from the other logistics functions is a very emotional and parochial issue for those on both sides of the issue. This debate continues today. It is clear even today that the staff surgeons at each level of command exercise significant if not confusing "informal" control over medical units within that command.

[19] Ibid, pg 81.

[20] Ibid, pg 175.

[21] The Munitions Board's charter extended beyond medical supply issues. This board looked at the entire DOD logistics system. Its authority is contained in the National Security Act of 1947. Section 213 of the National Security Act states "that the Munitions Board, subject to the authority and direction of the Secretary of Defense, shall perform, in support of strategic and logistic plans, and in consonance with guidance provided by the Joint Chiefs of Staff, the following duties: "(7) regrouping, combining, or dissolving of existing interservice agencies operating in the fields of procurement, production, and distribution in such a manner as to promote efficiency and economy." (Staff Study of the Military Medical Supply Systems, Part 3, Summary of Basic Directives Governing Study, pg 2)

[22] Department of Defense, "Staff Study of the Military Medical Supply Systems", The Medical and Dental Group of the Department of Defense Supply Systems Study Project, The Munitions Board, Washington DC, 1 June 1953, pg I.

[23] The Hoover Commission (1947-1949), among other things, proposed the establishment of a civilian managed 'Defense Supply and Service Administration' which would manage selected common supplies and materiel used by more than one service. The concept was to establish a single procurement agency, a single cataloguing system for supply management, and a single depot distribution system. The purpose was to reduce redundancies between the services and maximize efficiency and economy.

[24] The alternative COAs evaluated by the Army were:

(1) The General Services Administration (GSA) concept - which was rejected because of its civilian make-up and control of it residing outside of DOD;

(2) The Military 'Fourth Service' concept - which was rejected as costly and disruptive because it required the establishment of a new military department for supply;

(3) The Single Manager concept where one service is designated as the single manager - it was rejected because of the separation of requirements determination and research and development, and because it failed to maximize supply distribution;

(4) The 'Improvement of Existing Systems' concept, which was adopted for medical supplies, essentially left the changes implemented from the Munitions Board Study in place and focused on incremental changes to improve the system; and

(5) The 'Unified Manager' concept, which was adopted for subsistence, established centralized control of the depot distribution system and thus facilitated the integration of supply functions among the different storage depots.

[25] Department of the Army "Medical Logistics Policy Proponency Study", United States Army Logistics Evaluation Agency, New Cumberland, PA, January 1994, pg I.

[26] Ibid., pg 11.

[27] Martin, Mary CPT, Medical Logistics: Separate For A Reason, Research Paper #173, United States Army Medical Materiel Agency, 14 April 1993, 5&6.

[28] Workman, LTC Dale H., "The Case For Separate Medical Logistics Management", Army Logistician (July-August 1985) pg 30.

[29] Martin, Mary CPT, Medical Logistics: Separate For A Reason, Research Paper #173, United States Army Medical Materiel Agency, 14 April 1993, pg 1.

[30] Livermore, Phillip E. COL and LTC Angel E. Cintron, "Medical Logistics--Pillar of Health Care Delivery", Army Logistician (March-April 1994) pg 9.

[31] Martin, Mary CPT, Medical Logistics: Separate For A Reason, Research Paper #173, United States Army Medical Materiel Agency, 14 April 1993, pg 5.

[32] Department of the Army "Medical Logistics Policy Proponency Study", United States Army Logistics Evaluation Agency, New Cumberland, PA, January 1994, pg 2.

[33] United States Department of the Army. The Law Of Land Warfare (FM 27-10 w/change 1). Washington: Government Printing Office, July 1956, pg 87.

[34] Ibid., pg 9.

[35] Workman, LTC Dale H., "The Case For Separate Medical Logistics Management", Army Logistician (July-August 1985) pg 29.

[36] Livermore, Phillip E. COL and LTC Angel E. Cintron, "Medical Logistics--Pillar of Health Care Delivery", Army Logistician (March-April 1994) pg 9.

[37] Ibid., pg 11.

[38] The Technical Services consisted of the Ordnance, Quartermaster, Engineer, Signal, Medical, Transportation, and Chemical Corps.

[39] "Improvement of the Organization & Procedures of the Department of the Army ", based on the Cresap, McCormick and Paget Report, Hoover Commission Report, and Other Factors, Staff Study, Management Division, Office of the Army Comptroller, 22 July 1949, TAB D pg 14.

[40] Ibid., pg 15.

[41] Following the conclusion of World War II, the 80th Congress created the Hoover Commission to find ways for the government to improve its organization, methods, and procedures. The commission conducted studies for over two years, holding hearings and establishing various task forces to investigate different areas within the government that could be improved. The Commission's investigations were both comprehensive and extensive in nature. The Hoover Commission held hearings with all key members of the Executive Branch, establish 24 task forces who reported to the Commission, and reviewed hundreds of reports submitted by various Executive Branch Agencies to include the Defense Department and the Department of the Army.

[42] Ibid., TAB H, pg 17.

[43] Ibid., TAB H, pg18.

[44] The Cresap, McCormick and Paget Report met with considerable resistance within the Army. The group conducting the study had no military representation on it. This caused a considerable stir among many senior officers in the Army. It generated a large amount of correspondence focusing on the differences between businesses, with the goal of making money, and the Army, with the goal of winning the nation's wars. Many argued that the goal of efficiency applicable in business may not be directly applicable in the Army.

[45] "Improvement of the Organization & Procedures of the Department of the Army ", based on the Cresap, McCormick and Paget Report, Hoover Commission Report, and Other Factors, Staff Study, Management Division, Office of the Army Comptroller, 22 July 1949, pg 85.

[46] "Medical Logistics Policy Proponency Study", Final Report, United States Army Logistics Evaluation Agency, New Cumberland, Pennsylvania, 20 January 1994, pg 3.

[47] Emery, James S., "Is There a Logistics Corps in Our Future?" Army Logistician Magazine, January-February 1993, pg. 8.

[48] All of the proponents for the current system referred to in Chapter III have stressed the importance of working with this commodity on a daily basis. Each has acknowledged either explicitly or implicitly the importance of on the job training received by the medical supply specialist. Few would argue against the merits of on the job training.

[49] Spurgeon, Neel. Medical Support Of The U.S. Army In Vietnam 1965-1970. Vietnam Studies. Department of the Army, Washington D.C., 1973, pg 83 & 174.

[50] Logistics, The Life Blood of War, pg 199.

[51] "Operation Desert Storm: Full Army Medical Capability Not Achieved", Report to the Chairman, Subcommittee on Military Personnel and Compensation, Committee on Armed Services, House of Representatives, United States General Accounting Office, pg 31.

[52] "Wartime Medical Care: DOD Is Addressing Capability Shortfalls, But Challenges Remain" Report to the Chairman, Subcommittee on Military Personnel Committee on National Security, House of Representatives, U.S. General Accounting Office, Washington, D.C., September, 1996, pg 4.

[53] It is important to note that zero balance rates at USAMMCE remained between 20-23% for the Jan-Mar 1991 time frame which was the most rapid build-up period in the Gulf. These 'high' zero balance rates are reminiscent of the 28% zero balance rate at the ICP in Hawaii. In the later case, medical personnel maintained that rate was unacceptable; in the former, they are not so quick to pass similar judgment.

[54] Martin, Mary CPT, Medical Logistics: Separate For A Reason, Research Paper #173, United States Army Medical Materiel Agency, 14 April 1993, pg 6.

[55] Future medical logistics doctrine places the medical logistician in the Materiel Management Center instead of with the Division Surgeon (See future doctrine, Chapter I) in order to eliminate the current problem of tracking, synchronizing, and coordinating medical supply. This is also necessary since medical supply has a separate automated inventory control system (TAMMIS) which currently does not easily interface with the other logistical and C2 automated systems.

[56] A GAO report conducted shortly after the war found that, in general, hospital personnel lacked supply discipline. The report stated: "The lack of supply discipline placed unrealistic demands on the logistical system. Army officials told us that the decision had been made in theater to provide doctors with what they wanted, regardless of whether it was available within the Army's supply system. As one supply official stated, it is difficult to turn down requests when the people making the requests fully believe that unless they have exactly what they want, they cannot properly care for casualties. However, responding to so many demands-especially for items not in the Army's supply system-was more than the supply system could handle."

"Operation Desert Storm: Full Army Medical Capability Not Achieved", Report to the Chairman, Subcommittee on Military Personnel and Compensation, Committee on Armed Services, House of Representatives, United States General Accounting Office, pg 31.

[57] Lund, Paul W., "Medical Support For Future Combat: No More Vietnams", Naval War College, Newport, Rhode Island, 11 February 1991, pg 16-17. Lund also maintains that dispersion and an increasing logistics dependence of forces make lines of communication more likely targets which would further slow the flow of medical supplies on the battlefield. He also makes the point that increased lethality will cause greater casualties on the battlefield. On this point, he underestimates the nullifying effect that dispersion has on lethality. Greater dispersion, inherent on future battlefields, will negate the more lethal effects of future weapons which is supported by decreasing casualties on modern battlefields. But his point of an extended battlefield and the need for dispersion are correct.

[58] "Operation Desert Storm: Full Army Medical Capability Not Achieved", Report to the Chairman, Subcommittee on Military Personnel and Compensation, Committee on Armed Services, House of Representatives, United States General Accounting Office, pg 31.

[59] Various programming languages can be used to program different inventory control systems. Although data may be manipulated differently depending on the programming language and routines used, what is key for this discussion is the type of operation that is being performed. Examples of these operations include: processing a Material Release Order (MRO), performing an automatic high dollar value edit, processing and passing requests/requisitions, processing batches, etc.

[60] One need only look at the variety of ICS systems used outside the military by civilian hospitals and suppliers to see the truth in this statement. Different hardware and software applications are used to perform the same functions at different organizations.

[61] TQM is a management philosophy which focuses on continual improvement in the system. It recognizes the importance and responsibility of all persons involved in the process to ensure quality throughout. It strives to get everyone involved in the quality process.

TOC is a management philosophy that uses the concept of a 'system constraint' to guide the manager in improving the process thereby maximizing system throughput. For additional information on TOC see The Goal, A Process of Ongoing Improvement, by Eliyahu M. Goldratt.

[62] Velocity Management Training Support Package, CASCOM Homepage, www.cascom.army.mil/Multi/Training/tsp/Velocity_Mgt/Online_briefing/, pgs. 3-5.

[63] Ibid., pg 3.

[64] Ibid., pg 7.

[65] Prime Vendor is a concept similar to the Just-In-Time Inventory concept. The Army medical community through contracts administered by the Defense Personnel Support Center (DPSC) maintains a close working relationship with regional contractors who provide medical supplies to medical facilities throughout the country. Prior to PV, medical units received supplies from the Defense Logistics Agency (DLA). PV, in effect, bypasses DLA for certain types of supplies, sending those supplies directly to retail medical supply units. PV does not include all types of supply. Exempt are military unique items, fluids, controlled substances, Acquisition Advice Code D items and laboratory reagents.

[66] "Improvement of the Organization & Procedures of the Department of the Army ", based on the Cresap, McCormick and Paget Report, Hoover Commission Report, and Other Factors, Staff Study, Management Division, Office of the Army Comptroller, 22 July 1949, pg 99.

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